

PHIL/HPS 83801 Philosophy of Science
TTh 11:00-12:15
334 DeBartolo

Fall 2021

Prof. Don Howard
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Office Hours: TTh 1:00-2:00

Required Texts:

Michael Friedman. *Dynamics of Reason*. Stanford, CA: Center for the Study of Language and Information, 2001. (Go here <http://www-csli.stanford.edu/pubs/> and search. Also available from Amazon.com.) All other readings will be distributed by email.

Course Requirements: There will be a mid-term and a final examination, each an in-class, essay examination worth 25% of your final grade. A term paper (minimum 15 pages) will be worth 40% of your final grade. The remaining 10% of your grade will be based on class participation.

One-minute Papers: At the end of every class session, we will stop a minute or two early, so as to give you the opportunity to write “one-minute papers.” These will be ungraded, but required of every student at the end of every class. Normally no more than two paragraphs long, these one-minute papers must contain answers to two questions: (1) What was the most important issue addressed in today’s class? (2) What issue remains most unclear in your mind at the end of today’s class?

Schedule:

Date: Topic:

Readings:

Aug. 24 Introduction to the Course

Aug. 26 The General Historical
Background

Philipp Frank, “Introduction: Historical Background”

Aug. 31 Mach and Positivism

Ernst Mach, “Introductory Remarks: Antimetaphysical” and “The Guiding Principles of My Scientific Theory of Knowledge and Its Reception by My Contemporaries”

Sep. 2 Conventionalism

Henri Poincaré, “Experiment and Geometry”; Pierre Duhem, “Physical Theory and Experiment”

Sep. 7 Neo-Kantianism

Alan Richardson, “The Background to Early Carnap: Themes from Kant” and “The Fundamentals of Neo-Kantian Epistemology”

Sep. 9 Logicism and Formalism

Rudolf Carnap, “The Logicist Foundations of Mathematics”; John von Neumann, “The Formalist Foundations of Mathematics”

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| Sep. 14 | Schlick, Reichenbach, and Carnap before the Vienna Circle | Moritz Schlick, "Critical or Empiricist Interpretation of Modern Physics?" |
| Sep. 16 | " " " | |
| Sep. 21 | The Founding of the Vienna Circle | Otto Neurath et al., "The Scientific Conception of the World: The Vienna Circle"; Moritz Schlick, "The Turning Point in Philosophy" and "The Future of Philosophy" |
| Sep. 23 | The Protocol-Sentence Debate | Rudolf Carnap, "Protocol Statements and the Formal Mode of Speech"; Otto Neurath, "Protocol Statements"; Moritz Schlick, "On the Foundation of Knowledge" |
| Sep. 28 | Verificationism and Falsificationism | Rudolf Carnap, "The Elimination of Metaphysics through Logical Analysis of Language"; Carl G. Hempel, "The Empiricist Criterion of Meaning"; Karl Popper, "Science: Conjectures and Refutations" |
| Sep. 30 | The Left Wing of the Vienna Circle | Marx Wartofsky, "Positivism and Politics: The Vienna Circle as a Social Movement"; Otto Neurath, "Sociology in the Framework of Physicalism" |
| Oct. 5 | Philosophy as Logical Syntax | Michael Friedman, "Analytic Truth in Carnap's Logical Syntax of Language"; Rudolf Carnap, "Empiricism, Semantics, and Ontology" |
| Oct. 7 | The Observational/Theoretical Distinction | Carl G. Hempel, "The Theoretician's Dilemma"; Grover Maxwell, "The Ontological Status of Theoretical Entities" |
| Oct. 12 | Scientific Realism | Ernan McMullin, "A Case for Scientific Realism"; Ian Hacking, "Experimentation and Realism" |
| Oct. 14 | <i>Mid-term Examination</i> | |
| Oct. 18- Oct. 22 | <i>Fall Break</i> | |
| Oct. 26 | Constructive Empiricism | Bas C. van Fraassen, "Arguments Concerning Scientific Realism" and "To Save the Phenomena" |
| Oct. 28 | The Natural Ontological Attitude | Arthur Fine, "The Natural Ontological Attitude" and "And Not Anti-realism Either" |
| Nov. 2 | Structural Realism | Anjan Chakravartty, "Structuralism as a Form of Scientific Realism" |

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| Nov. 4 | Explanation | Ernest Nagel, “The Deductive Pattern of Explanation”; Carl G. Hempel, “Inductive–Statistical Explanation” |
| Nov. 9 | The Nature of Scientific Laws | Ernest Nagel, “The Logical Character of Scientific Laws”; Fred I. Dretske, “Laws of Nature” |
| Nov. 11 | Theories of Confirmation | Carl G. Hempel, “Studies in the Logic of Confirmation” |
| Nov. 16 | The New Riddle of Induction | Nelson Goodman, “The New Riddle of Induction” |
| Nov. 18 | Dewey, Quine, and Epistemological Naturalism | W.V.O. Quine, “Two Dogmas of Empiricism,” “Epistemology Naturalized” |
| Nov. 23 | <i>Thanksgiving Holiday</i> | |
| Nov. 25 | Feminist Science Theory | Janet Kourany, “A Philosophy of Science for the Twenty- First Century” |
| Nov. 30 | Friedman, Kuhn, and the Contingent A Priori | Michael Friedman, <i>Dynamics of Reason</i> (Part 1) |
| Dec. 2 | | Michael Friedman, <i>Dynamics of Reason</i> (Part 2) |
| Dec 7 | Critical Responses to Friedman | Don Howard, “‘Let me briefly indicate why I do not find this standpoint natural.’ Einstein, General Relativity, and the Contingent A Priori”; Thomas Ryckman, “The ‘Relativized A Priori’: An Appreciation and a Critique” |
| Dec. 13 | <i>Final Examination 10:30 am- 12:30 pm</i> | |
| Dec. 16 | <i>Term Paper Due</i> | |